

WHAT IS CLAIMED IS:

1. An optical transmission apparatus for selecting, based on a first metric representative of a criterion for decision, an optical transmission route to a desired destination on a network for thereby transmitting information to said desired destination, said apparatus comprising:

a plurality of quality monitors each for monitoring quality of a signal, which carries the information and arrives on a particular optical transmission path, immediately before said signal is input;

a monitor/control unit for converting first data being monitored to second data in accordance with conditions of each optical transmission path, comparing said second data selectively fed to said monitor/control unit path by path to thereby select a route, generating a second metric for said route selected, adding said second metric to the first metric of, among a plurality of optical transmission paths having a same metric value, an optical transmission path corresponding to said route selected to thereby control delivery of information, and controlling an error correcting function relating to said optical transmission path; and

a route selecting circuit for selecting one of signals fed thereto in accordance with control over the error correcting function.

2. The apparatus in accordance with claim 1, wherein said plurality of quality monitors each calculate either one of an OSNR (Optical Signal-to-Noise Ratio) and a Q factor to thereby output the first data.

3. The apparatus in accordance with claim 1, wherein the second data each are representative of a particular bit error rate.

4. The apparatus in accordance with claim 2, wherein the second data each are representative of a particular bit error rate.

5. The apparatus in accordance with claim 4, wherein said monitor/control unit comprises:

a plurality of first converting circuits each for directly outputting, when converting the first data of a particular transmission path to the second data, said first data as third data;

a plurality of second converting circuits each for converting the first data of a particular path to the second data while executing error correction with said first data to thereby output fourth data;

a plurality of selectors each being assigned to a particular path for selecting either one of the third data and the fourth data of said particular path;

a metric generating circuit for comparing the third data and the fourth data selected by said plurality of selectors and generating the second metric for a path selected in accordance with a result of comparison;

a data storage storing routing information indicative of routes to the destination in accordance with a preselected rule;

a metric determining circuit for reading an optimal route to the destination out of said data storage and determining metrics having a same first metric value;

a metric adding circuit for adding said second metric to said first metric of, among the metrics having the same first metric value, the metric corresponding to the path selected to thereby output a third metric;

a control interface for controlling the error correcting function path by path and said plurality of selectors while

outputting, based on said routing information, switching information for switching said route selecting circuit, and feeding the first data to a corresponding path.

6. A method of determining an optimal route for optical transmission by selecting, based on a first metric representative of a criterion for decision, an optical transmission route to a desired destination on a network for thereby transmitting information to said desired destination, said method comprising the steps of:

monitoring quality of a signal, which carries the information and arrives on a particular optical transmission path, immediately before said signal is input to thereby output first data being monitored;

directly outputting, when converting the first data output path by path to second data representative of a transmission ability, the signal input as third data;

executing, when converting the first data output path by path to the second data, error correction with the signal input to thereby output fourth data;

selecting either one of the third data and the fourth data output path by path in accordance with control over a path-by-path error correcting function;

comparing the third data and the fourth data selected, selecting a route in accordance with a result of comparison, and generating a second metric for said route;

determining, when reading an optimal route to the destination out of routing information preselected in accordance with a preselected rule, metrics having a same first metric value;

adding, when metrics having a same first metric value exist, the first metric corresponding to the path selected to the second metric to thereby output a third metric; and

generating switching information for switching the path in response to the routing information corresponding to the third metric, and controlling an error correcting function path by path.

7. The method as claimed in claim 6, wherein the second data comprises a bit error rate.

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